

# AVIAN CHLAMYDIOSIS (Ornithosis – Psittacosis)

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## **Definition**

It is a bacterial respiratory disease of pet birds, poultry, and wild birds caused by *Chlamydophila psittaci* (formerly *Chlamydia psittaci*) that is usually systematic infection and occasionally fatal. The disease characterized by respiratory signs, increased mortality up to 30% and reduced egg production. In psittacine birds (parrots, parakeets, cockatoos, macaws, etc) and humans, avian chlamydiosis is also referred to as psittacosis. In other avian species, it is sometimes called ornithosis. It has a specific zoonotic importance (psittacosis or parrot fever).

## **Etiology:**

*C. psittaci* is an obligate intracellular gram-negative bacterium. It has the ability to produce intracytoplasmic inclusion bodies. *Chlamydophilina* has a biphasic life cycle and exists as elementary and reticulate bodies. Elementary bodies are infectious, non-replicating particles that exist outside the body. Reticulate bodies, metabolically active particles that replicate by binary fission, form from elementary bodies that have entered epithelial cells. Reticulate bodies are condensed into elementary bodies, which may be released after cell lyses. Released elementary bodies may infect other host cells or may be released into the environment. Elementary bodies were found in feather dust, feces, urine, saliva and ocular, nasal and respiratory secretions. The organism is propagated in ECE. There are 8 serotypes (A-F), M56 and WC.

## **Host:**

*C. psittaci* is known to infect most species of pet birds, poultry (domestic fowl, turkeys, ducks, geese and closely related domestic species) as well as 400 wild avian species. Psittacine birds and pigeons have the highest infection rates. Among poultry, major outbreaks have also occurred on turkey and duck farms and have often led to infection of humans.

**Transmission:**

The most important routes of transmission of *C. psittaci* in nature are the inhalation and ingestion of contaminated material. *C. psittaci* can be also transmitted in the nest, that in many species, such as columbiformes, cormorants, egrets, and herons, transmission from parent to young may occur through feeding, by regurgitation. Vertical transmission has been demonstrated in chickens, ducks, parakeets, seagulls and snow geese

**Incubation period:**

5-10 days.

**Clinical signs:**

Manifestation of chlamydiosis in birds is variable, ranging from asymptomatic to sudden death. Asymptomatic infections are common and birds may shed the organism for several months without exhibiting clinical disease. Persistent infections in carrier birds may be latent for years before a stressful episode leads to the emergence of clinical signs and shedding of the organism. Most acute outbreaks and deaths are in young birds exposed to high doses of a virulent strain. Clinical disease is usually the result of exposure to new strains, poor husbandry, overcrowding, poor nutrition, or concurrent disease. Chlamydiosis is a common and important disease in pet bird medicine and in flock medicine.

1. Yellow-to-greenish or watery gray droppings
2. Severe respiratory signs (rhinitis, sinusitis, dyspnea).
3. Dehydration, lethargy, and ruffled feathers.
4. Keratoconjunctivitis (ocular involvement).
5. Drop of egg production.
6. Decreased or reduced body weight (weight loss).

**Necropsy findings:**

1. Ocular lesion.
2. Pericarditis.
3. Airsaculitis.
4. Pneumonia and tracheitis.
5. Pancreatic necrosis (pigeons).

### **Diagnosis:**

1. Clinical signs and necropsy findings.
2. Direct smear stained by Geimsa stain (inclusion bodies).
3. Inoculation of ECE 6-7 days at 39°C result in death of embryos.
4. Detection of antigen by IFT, ELISA or IP.
5. Serodiagnosis:
  - a. Complement fixation (CFT).
  - b. Latex agglutination (LA).
  - c. Indirect IFT.
  - d. ELISA.
  - e. PCR

### **Treatment:**

Antibiotic treatment of birds is the usual response to known infections. Tetracyclines are usually considered the drugs of choice although quinolones (enrofloxacin) or macrolides (erythromycin, tylosin) have also been used. Chlortetracycline (CTC) is given on food at levels of 500-5,000 ppm depending on the bird species to be treated and type of food. Doxycycline has also been used for injecting and in food (1000 mg/kg) or in drinking water (200-800 mg/litre, depending on the species and environmental conditions). Treatment with tetracyclines should be extended for at least 3 weeks (non-interrupted) to prevent developing of carriers.

### **Human infections with *C. psittaci***

The disease in humans varies from a flu-like syndrome to a severe systemic disease with pneumonia and possibly encephalitis. The disease is rarely fatal in patients treated promptly and correctly. Therefore, awareness of the danger and early diagnosis are important. Infected humans typically develop headache, chills, malaise and myalgia, with or without signs of respiratory involvement. Pulmonary involvement is common, but auscultatory findings may appear to be normal. Avian chlamydiosis in humans should be considered an occupational disease with commercial pet birds handlers, veterinarians and poultry workers exposed to the greatest risk.